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GRIMMIA TERETINERVIS LIMPR. IN NORTH AMERICA.

By JOHN M. HOLZINGER.

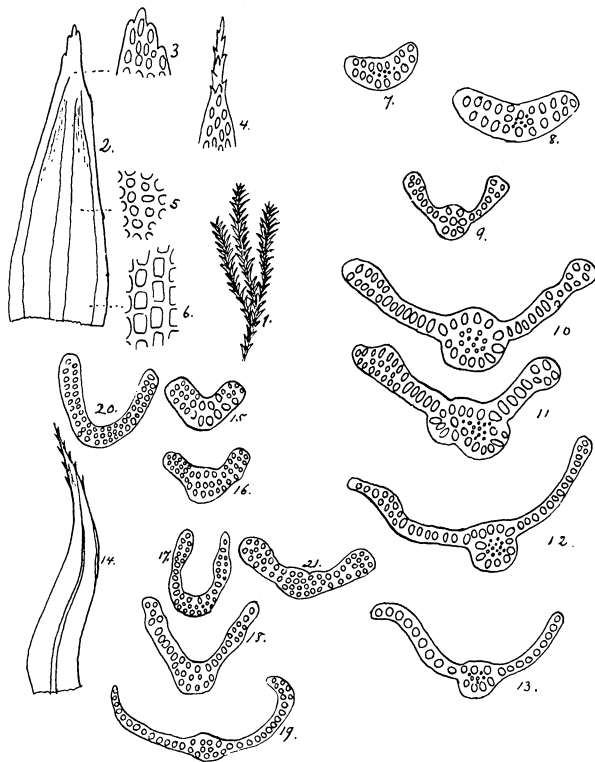
FOR nearly fifteen years the writer has had under observation a plant which occurs abundantly in certain localities near Winona, on arenaceous boulders near the tops of our bluffs. It prefers north exposures, and grows in dense, black green cushions one to four inches in diameter. It has been found at several stations within a radius of forty miles, but always sterile, or with depauperate female flowers only. All attempts at a satisfactory determination of this plant in its sterile form have been futile, until recently I happened upon Limpricht's figures of leaf sections of his *Grimmia teretinervis*; these agreed strikingly with the accompanying figures of leaf-sections of the American plant drawn some time prior to the discovery. Professor Limpricht at first referred this plant doubtfully to *Eugrimmia*, but entered it in his Laubmoose under *Schistidium*. Had he adhered to his first judgment and entered it as a *Eugrimmia*, the determination could have been made long ago, for I have persistently referred it to *Eugrimmia*. I am of opinion that the plant belongs nearer to *Grimmia Olneyi* Sulliv., and *Grimmia campestris* Burchell, than to any other American species of this genus. The reasons for this conclusion will be suggested by a comparison of leaf-cells and leaf-sections figured below, without detailed discussion.

Prof. Limpricht, to whom the plant has been referred for comparison, states that he considers it correctly determined. He has also kindly sent for comparison some of the plants collected by J. Breidler in Steinmark, cited in Laubm., 1: p. 718. These plants agree very closely with the American plants and fully clear up all remaining doubts. Prof. Limpricht describes the stems as unbranched; Breidler's plants are certainly branched, as are those from near Winona. The leaves are described as "lance-linear from (or above) a decurrent oval base;" this description of an "oval base" had vexed me a little, apparently constituting a disagreement; but the leaves on Breidler's and the American plant are exactly alike in shape. Then, our plants seemed to have none of the golden-yellow gemmæ (Brutkörper) mentioned at the end of the author's description. On this point Prof. Limpricht writes, in his letter dated February 4, 1900: "The species never shows gemmæ; my citation rests upon an error into which I was led by the scant original material in 1884, which was mixed

with *Didymodon rigidum*; and it is to this that the described 'gemmae' belong."

Allowing, therefore, the modifications suggested above, that author's original description, subjoined, holds for this plant

Some weeks ago I received from Mrs. Britton a specimen of *Grimmia teretineris* collected in Austrian Tyrol by Dr. Burchard. That plant, though coming from the first region cited in Laubm. p. 718, does not agree so well with the author's description, nor



EXPLANATION OF FIGURES. GRIMMIA TERETINERIS Limpr. Fig. 1. A plant, $\times 2\frac{1}{2}$. Fig. 2. A leaf, $\times 30$. Figs. 3-6. Enlarged cells from apex, middle, and base of leaf. Figs. 7-13. Cross-sections of leaves. Fig. 14. Enlarged leaf of *Grimmia Olneyi*. Figs. 15-20. Cross-sections of leaves of *Grimmia campestris* Burchell. Fig. 21. Cross-section of a leaf of *Grimmia Olneyi* above middle.

with the American specimens, as does Bredler's plant communicated by the author. But this is a matter for European students to settle. It is a matter of satisfaction for American students to be sure that the plant in question is true *Grimmia teretinervis* Limpr., and the writer desires to thank both the author and Mrs. Britton for kindly sending specimens, without which this problem could not have been settled.

The description of *Grimmia teretinervis*, is translated from Limpr., Laubm., 1: 717, 718.

297. SCHISTIDIUM (?) TERETINERVE (Limpr.) Synonym: *Grimmia* (*Eugrimmia*?) *teretinervis* Limpr. in 61. Jahresb. d. schles. Ges. p. 216 (1884). Dioicous, known only in female sterile plants. Perhaps to be placed next to *Grimmia commutata* or *G. ovata*. Cushions blackish, more rarely dark-green, to 4 cm. in diameter, loosely cohering, in habit somewhat like *G. commutata*. Stems 1-2, rarely 3 cm. long, slender, unbranched, in cross section showing large thin-walled parenchyma cells, small thick-walled cortical cells and a little developed central strand. Leaves firm, the lower erect patent, the upper appressed, but when moistened becoming somewhat recurved, then also erect-patent, from a decurrent oval base, lance linear, concave (1.2-1.35 mm. long and 0.4-0.45 mm. wide) with a slender, short, toothed hair about 0.45 mm. long; lower leaves hairless, or with a very short hair point. Leaf margin plane, only at the base slightly reflexed. Lamina toward base of one cell layer, in the middle sporadically bistratose, toward apex bistratose for several cells from the margin, hence the unistratose areas on each side of the costa appear as two well-defined longitudinal strips. Costa stout, brownish; bi-convex, with 4-6 ventral cells, central cells alike, small. Leaf cells similar throughout, with rather thick, yet even walls, not unequally thickened, very small, roundish-quadrate, 0.007-0.009 mm. in size, only toward the base on each side of the costa with a few rows of short rectangular cells. Female buds at ends of branches, with 5-6 poorly developed archegonia (0.54 mm. long) and a few pellucid paraphyses. Male plants and fruit not known.

Winona, Minn., February, 1900.

KEEP watch of the different mosses in your locality and record the date of the first appearance of the sporophyte and the date of ripening spores. Be sure to collect specimens to verify your observations.